Remarks

Claims 1-3, 5-18 and 20 are pending in this application. The Examiner has rejected claims 1-20 as being obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 6,282,601 to Goodman et al. (hereinafter "Goodman"), in view of U.S. Patent Application No. 20040019722 to Sedmak (hereinafter "Sedmak).

A. Independent Claims 1, 8, and 15

A *prima facie* case of obviousness requires a showing that all of the claim limitations of the rejected claims are taught or suggested by the prior art. Manual of Patent Examining Procedure 2143 and 2143.03. "All words of a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (CCPA 1970). The pending claims are not obvious over the combination of Goodman and Sedmak because the combination fails to teach or suggest all of the elements of Applicant's claims. Specifically, the combination of Goodman and Sedmak fails to teach or suggest that each processor be operable to access the semaphores associated with the processors of the system on a **non-exclusive** basis, as required by the claims of the present invention.

In the Response to Arguments section of the present office action, the Examiner states that Sedmak teaches an alternative embodiment in which a plurality of semaphores would be operational, and in which each processor would have access to said semaphores on a non-exclusive basis for proper arbitration. (Office Action, p.11) Specifically, the Examiner points to paragraphs [0016] and [0018] of Sedmak, stating that each processor has said access via the CAU unit that arbitrates all semaphore requests. Applicant disagrees with the Examiner's assertion that the cited portions of Sedmak teach or suggest that each processor be operable to access the semaphores associated with the processors of the system on a **non-exclusive** basis.

The Specification of the present invention states, "Because each semaphore can be accessed independently, the semaphores need not be accessed on an exclusive, or atomic basis." (Published Spec., [0011]) A lock instruction or *other exclusive access instruction* need **not be used** when accessing a semaphore in the system of the present invention, thereby improving system performance. (Published Spec., [0011]) Additionally, because each processor will attempt to update only its associated semaphore upon initiation of system management mode, there will be less contention for resources. (Published Spec., [0012]) To summarize, because a separate and distinct semaphore is assigned to each processor, access by a processor to its associated semaphore can be accomplished on a **non-exclusive** basis *without the necessity of a lock instruction* and without the risk of interference caused by another processor, in certain cases. (Published Spec., [0026])

The cited portions of Sedmak, however, fail to teach or suggest that each processor be operable to access the semaphores associated with the processors of the system on a **non-exclusive** basis. Paragraph [0018] of Sedmak discloses an alternative embodiment in which more than one semaphore may be used, but Sedmak clearly states, ". . . [A] separate Request/Grant bit pair and corresponding lines will be required on each core for each semaphore implemented." (Sedmak, [0018]) These Request and Grant lines are all connected to a central arbitrating unit (CAU) that ensures that *only one core at a time* is granted a semaphore, in order to resolve contention. (Sedmak, [0017] and [0019]) A core must be granted a semaphore before certain execution steps take place. (Sedmak, [0020]) Thus, in direct contrast to the present invention, an *exclusive access instruction* must be used when accessing a semaphore in Sedmak. Applicants therefore traverse the Examiner's statement that each processor of Sedmak would have access to the semaphores on a non-exclusive basis for proper arbitration.

As Applicants have previously stated, even though Sedmak discusses multiple semaphores, *only one* of the cores 104(1) or 104(2) may be granted a semaphore at a time. (Sedmak, [0019]). That is, a core in Sedmak is not uniquely associated with a semaphore; a core must always request and be *exclusively* granted a semaphore through the arbitration unit. (Sedmak, [0017]) The Examiner states that each processor has access to the semaphores via the CAU unit (110), which arbitrates all semaphore requests. (Office Action, p.3) The CAU unit clearly determines which *one* core has *exclusive* access to the semaphore(s) in question, in clear contrast to the Examiner's assertion that *each* processor has access to the semaphores in a **non-exclusive** manner. (Sedmak, [0017] and [0019]) Finally, the Examiner's assertion that each processor has access to the semaphores via the CAU unit is not fully explained; the Examiner stated that the semaphores reside in the control registers 106(1) and 106(2) but failed to show how the CAU provides each core non-exclusive access to the semaphores residing in the control registers of the other cores. Thus, Sedmak does not teach or suggest multiple semaphores, **each** of which may be accessed **independently** and in a **non-exclusive** manner by each processor, as described by Applicant's Specification and required by the claims (Spec., p.5:10-15) Sedmak fails to teach or suggest that each processor be operable to access the semaphores associated with the processors of the system on a **non-exclusive** basis, as required by the claims of the present invention. The Examiner does not cite to Goodman as curing the deficiencies of Sedmak.

For the reasons presented above, the combination of Goodman and Sedmak fails to teach or suggest all of the elements of independent claims 1, 8, and 15. Thus, a prima facie case of obviousness is not shown, and the rejection of independent claims 1, 8, and 15 should be withdrawn.

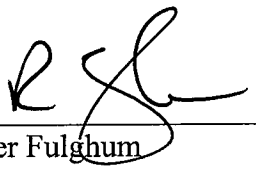
B. The Rejection of Dependent Claims 2,3, 5-7, 9-14, 16-18, and 20

The rejection of dependent claims 2,3, 5-7, 9-14, 16-18, and 20 will not be discussed individually herein, as each of these claims depends, either directly or indirectly, from an otherwise allowable base claim.

Conclusion

Applicant respectfully submits that the pending claims 1-3, 5-18 and 20 of the present invention, as amended, are allowable. Applicant respectfully requests that the rejection of the pending claims be withdrawn and that these claims be passed to issuance.

Respectfully submitted,



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